

Dr Jochen Weller

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Personal Information Birth: November 22, 1969, Schramberg, Germany

Career

10/2004 -	DEPARTMENT OF PHYSICS AND ASTRONOMY University College London, UK Lecturer
9/2004 - 8/2005	THEORETICAL ASTROPHYSICS GROUP Fermilab, USA David N. Schramm Fellow
10/2003 - 9/2004	INSTITUTE OF ASTRONOMY University of Cambridge, UK Fixed Term Lecturer
10/2002 - 9/2003	INSTITUTE OF ASTRONOMY University of Cambridge, UK Postdoctoral Research Associate (Leverhulme Fellow)
10/2000 - 9/2002	DEPARTMENT OF APPLIED MATHEMATICS AND THEORETICAL PHYSICS University of Cambridge, UK Postdoctoral Research Associate

Education

1999 - 2000	UNIVERSITY OF CALIFORNIA IN DAVIS, USA Visiting Postgraduate Student
1996 - 2000	IMPERIAL COLLEGE, LONDON, UK Doctor of Philosophy, 31 October 2000 Diploma of the Imperial College in Physics, 30 November 2000 Ph.D. program in Theoretical Physics/Cosmology Thesis Advisor: Prof. A. Albrecht Thesis Title: <i>Observational consequences of modern cosmological theories</i>
1990 - 1996	UNIVERSITY OF KARLSRUHE, GERMANY Diploma in Physics, "sehr gut", 16. August 1996 Diploma Thesis: <i>Construction of a new Yang-Mills-Higgs instanton</i> Thesis Advisor: Prof. F.R. Klinkhamer

Awards

2001 - 2004	Trapnell Fellowship at King's College, Cambridge
1997 - 2000	DAAD (German Academic Exchange Service) Fellowship financed by the German Federal Ministry for Research and Technology

Other Professional Activities

	Referee for the Journals: Science, Physical Review Letters, Monthly Notices of the Royal Astronomical Society, Physical Review D, Classical and Quantum Gravity, Astronomy and Astrophysics, New Astronomy, Physics Letters B.
1999 - 2004	Organization of various seminars at University of Cambridge and UC Davis
1999-2000	System Administrator; cosmology group UC Davis
1997-1998	WWW administrator; Theoretical Physics group, Imperial College

Professional Affiliations

since 2003	Fellow of the Royal Astronomical Society
since 2001	Planck HFI associate for scientific support
since 1997	Member of the Institute of Physics
since 1993	Member of the "Deutsche Physikalische Gesellschaft"

Research Supervision

2003/2004	INSTITUTE OF ASTRONOMY, UNIVERSITY OF CAMBRIDGE Co-Supervision of PhD student (together with Nick Walton) : Laurie Shaw (Mock Catalogues and Virtual Observatories)
2003/2004	INSTITUTE OF ASTRONOMY, UNIVERSITY OF CAMBRIDGE Supervision of EARA postgraduate (PhD) exchange student
2001/2002	DAMTP, UNIVERSITY OF CAMBRIDGE, UK Supervision of student projects at PPARC <i>International Undergraduates Summer school</i>

Teaching

- 2004 INSTITUTE OF ASTRONOMY, UNIVERSITY OF CAMBRIDGE
Lecture in “Physical Cosmology”
(<http://home.fnal.gov/~jweller/Teaching/physcos.html>)
- 2003 INSTITUTE OF ASTRONOMY, UNIVERSITY OF CAMBRIDGE
Part III problem classes in “Physical Cosmology”
- 2001-2004 UNIVERSITY OF CAMBRIDGE, KING’S COLLEGE, UK
Undergraduate Supervisions in Physics
- 1999 UNIVERSITY OF CALIFORNIA, DAVIS, USA
Teaching Assistant in Laboratory Experiments
for Undergraduates in Mechanics, Electricity & Magnetism
and Thermodynamics
- 1997 - 1998 IMPERIAL COLLEGE, LONDON, UK
Final year undergraduate problem classes in General Relativity
- 1994 - 1996 UNIVERSITY OF KARLSRUHE, GERMANY
Undergraduate problem classes in Theoretical Physics
(Mechanics, Electrodynamics and Quantum Mechanics)
- 1992 - 1996 UNIVERSITY OF KARLSRUHE, GERMANY
Undergraduate problem classes in Advanced Mathematics
(Analysis, Linear Algebra, Differential Equations)

Publications

In preparation

“Cosmic Microwave Anisotropies and a Varying Equation of State of Dark Energy”, D. Rapetti and J. Weller.

“Constraining Reionization with the Cosmic Microwave Background”, A.M. Lewis, J. Weller and R. Battye.

“Optimizing the Yield of Sunyaev-Zel’dovich Cluster Surveys”, R. Battye and J. Weller.

Submitted

30. “Constraining Dark Energy with X-ray Galaxy Clusters, Supernovae and the Cosmic Microwave Background”, D. Rapetti, J. Weller and S.W. Allen.
29. “Constraints on the Primordial Power Spectrum from High Resolution Lyman-alpha Forest Spectra and WMAP”, M. Viel, J. Weller and M.G. Haehnelt.
28. “Statistics of Substructures in Dark Matter Clusters”, J. Weller, J.P. Ostriker and P. Bode.
27. “Neutral Hydrogen Surveys for High Redshift Galaxy Clusters”, R.A. Battye, R.D. Davies and J. Weller.

Journal Articles

26. “Anomalous Flux Ratios in Gravitational Lenses: For or Against CDM?”, S. Mao, Y.P. Jing, J.P. Ostriker and J. Weller, ApJ Letters, 604, L5 (2004) .
25. “Evidence and Dark Energy in Supernovae Surveys”, T. Saini, J. Weller and S. Bridle, MNRAS, 348, 603 (2004).
24. “Constraining Cosmological Parameters using Sunyaev-Zel’dovich Cluster Surveys”, R. Battye and J. Weller, PRD, 68, 083506 (2003).
23. “Dark Energy and Large Scale Cosmic Microwave Anisotropies”, J. Weller and A. Lewis, MNRAS, 346, 987 (2003).
22. “Reconstructing the primordial power spectrum”, S.L. Bridle, A.M. Lewis, J. Weller, G. Efstathiou, MNRAS, 342, L72 (2003).
21. “Constraining dark energy with Sunyaev-Zel’dovich cluster surveys”, J. Weller, R. Battye and R. Kneissl, Phys. Rev. Lett. , 88, 231301 (2002).
20. “Future Supernovae Observations as a Probe of Dark Energy”, J. Weller and A. Albrecht, Phys. Rev. D65, 103512 (2002).

19. "Opportunities for future supernova studies of cosmic acceleration ", J. Weller and A. Albrecht, Phys. Rev. Lett. , 86, 1939 (2001)
18. "Cosmic concordance and the fine structure constant", R.A. Battye, R. Crittenden and J. Weller, Phys. Rev. D 63, 043505 (2001)
17. "Cosmic structure formation in Hybrid Inflation models", R.A. Battye and J. Weller, Phys. Rev. D 61, 043501 (2000)
16. "Inhomogeneous reionization and the cosmic microwave background polarization", J. Weller, ApJ Letters, 527, L1 (1999)
15. "Reionization by active sources and its effects on the cosmic microwave background", J. Weller, R.A. Battye and A. Albrecht, Phys. Rev. D 60, 103520 (1999)
14. "Construction of a new constrained instanton in Yang-Mills-Higgs theory", F.R. Klinkhamer and J. Weller, Nucl.Phys. B481 (1996) 403-420
13. "The Statistics of Substructures in Dark Matter Clusters", J. Weller, J.P. Ostriker and P.W. Bode XXXIXth RENCONTRES DE MORIOND MORIOND, "Exploring the Universe", La Thuile, Italy, March 28th - April 4th, 2004.
12. "Reconstructing the primordial power spectrum", S. L. Bridle, , A. M. Lewis, J. Weller, and G. Efstathiou, to appear in 'Maps of the Cosmos', ASP conference series IAU Symposium 216, eds. M. Colless and L. Staveley-Smith.
11. "Reconstructing the primordial power spectrum", S. Bridle, A. Lewis, J. Weller and G. P. Efstathiou, CMBNET meeting, March 2003, Oxford, UK. New Astronomy Reviews, 47, 787 (2003).
10. "Constraining Dark Energy using Sunyaev-Zel'dovich Cluster Surveys", J. Weller and R. Battye, CMBNET meeting, March 2003, Oxford, UK, New Astronomy Reviews, 47, 775 (2003).
9. "Complementary tests of dark energy.", J. Weller, R. Battye and R. Bean, XVIIIth IAP Colloquium, "On the nature of dark energy", 1-5 July 2002, Paris, France.
8. "Sunyaev-Zel'dovich survey using a large beam.", R. Battye and J. Weller, IAP Colloquium, "On the nature of dark energy", 1-5 July 2002, Paris, France.

**Conference
Proceedings**

7. "Constraining dark energy with future Sunyaev-Zel'dovich surveys" J. Weller, R. Battye and R. Kneissl, XXXVIIth Rencontres de Moriond, "The Cosmological Model" 16-23 March 2002.
6. "Complementary constraints on dark energy", J. Weller and R. Battye, XXI-Ird Rencontres de Blois "Frontiers of the Universe" 17-23 June 2001.
5. "Constraints on dark energy and its models", D. Huterer, E. V. Linder and J. Weller, Yellow Book on Dark Energy, SNOWMASS 2001, eds. E. V. Linder, 2001.
4. "Characterizing Models of the Dark Energy with SNAP", A. Albrecht and J. Weller, 2000, BAAS, 197, 6106.
3. "Bubbles from dark energy ?", J. Weller, Proceedings of the 7th International Symposium on Particles, Strings and Cosmology, Lake Tahoe, California, December 1999. eds. K. Cheung, J. F. Gunion, and S. Mrenna.
2. "Mixed perturbation scenarios for structure formation", R.A. Battye and J. Weller, Proceedings of the 19th Texas Symposium on Relativistic Astrophysics and Cosmology, Paris, France, 1998. eds.: J. Paul, T. Montmerle, and E. Aubourg

Short papers

1. "Early structure formation with cold plus hot dark matter: a success of strings plus inflation models", R.A. Battye, J. Magueijo and J. Weller, astro-ph/9906093

Scientific Talks

- July 2004 “New Constraints on the Evolution of the Equation of State of Dark Energy”, GR17, Dublin, Ireland.
- March-May 2004 “Constraining Cosmological Parameters using Sunyaev-Zel’dovich cluster surveys”, MPA, Munich, Germany; CITA, Toronto, Canada; University of Sussex, Brighton, UK.
- March 2004 “Statistics of Substructures in Dark Matter Clusters”, “Exploring the Universe”, Recontres de Moriond, La Thuile, Italy.
- November 2003 “Dark Energy and Large Scale Cosmic Microwave Background Anisotropy”, Imperial College, London, UK.
- August 2003 “Constraining dark energy with the Cosmic Microwave Background”, COSMO 03, Ambleside, UK.
- June 2003 “Large Scale CMB Anisotropies and Dark Energy”, Microwave Background after WMAP, Workshop at the Aspen Center of Physics, Aspen, USA.
- “Cosmological Parameters from SZ cluster counts”, Cosmology and Astrophysics with Galaxy Clusters, Workshop at the Aspen Center of Physics, Aspen, USA.
- May 2003 “W from WMAP”, OXCAM 7, Cambridge University, UK.
- March 2003 “Constraining dark energy with SZ cluster surveys”, CMBNET Meeting, Oxford University, UK.
- January 2003 “Complementary probes of dark energy from future cluster and Supernovae surveys”, Oxford University, UK.
- November 2002 “Complementary probes of dark energy from future cluster and Supernovae surveys, Portsmouth University, UK.
- July 2002 “Complementary probes of dark energy from future cluster and Supernovae surveys, “XVIIIth IAP Colloquium: ON THE NATURE OF DARK ENERGY”, Paris, France.

March 2002	“Constraining Dark Energy with Future SZ cluster surveys”, “The cosmological model”, Rencontres de Moriond, Les Arcs, France.
March 2002	“Constraining Dark Energy with Cluster Redshift Distribution”, Imperial College, London, UK.
January 2002	“Probing dark energy with future Supernovae observations”, University of Illinois in Urbana - Champaign, USA.
December 2001	“Constraining dark energy with future Sunyaev-Zel’dovich surveys”, Dark Energy Workshop, CfCP, University of Chicago, USA.
December 2001	“Constraining dark energy with future Sunyaev-Zel’dovich surveys”, Princeton University, USA and CITA, University of Toronto, Canada.
August 2001	“Constraints on dark energy from SZ surveys”, Joint UK BSM - Cosmology Meeting, Ambleside, Lake District, England.
July 2001	“Observational Constraints on Dark Energy Models”, Cosmology Summer Workshop, Santa Fe, USA.
June 2001	“Complementary constraints on dark energy”, , “Frontiers of the Universe”, XIIIèmes Rencontres de Blois, Blois, France.
March 2001	“What can we learn from the “SuperNovae Acceleration Probe – SNAP” about dark energy”, CAPAC, Imperial College, London, UK.
December 2000	“Delayed Recombination and the CMB”, CMBNET Meeting 2000, Oxford University.
November 2000	“What can we learn from the “SuperNovae Acceleration Probe – SNAP” about dark energy”, University of Sussex, Brighton, UK.
January 2000	“Dark Energy and Planck Scale Physics”, Fermilab Chicago
December 1999	“Bubbles from Dark Energy”, PASCOS 99, Granlibakken, Lake Tahoe, USA
November 1999	“Bubbles from Dark Energy”, UK Cosmology Meeting, Isaac Newton Institute, Cambridge, UK

Fall 1999	“Reionization and the cosmic microwave background”, CfPA UC Berkeley, CfA Harvard University, Imperial College London, University of Oxford, DAMTP University of Cambridge
July 1999	“Inhomogeneous reionization and the polarization of the cosmic microwave background”, NATO ASI “Structure Formation in the Universe”, Cambridge, UK
December 1998	“Cold plus Hot Dark matter – a success for strings + inflation”, CAPAC Seminar, Imperial College, London, UK “Structure Formation in Hybrid Inflation Models”, UK Cosmology Meeting, Imperial College, London, UK
May 1998	“Structure Formation with Causal White Noise”, UK Cosmology Meeting, Oxford, UK
March 1998	“Reionization by active sources and the CMB”, UK Cosmology Meeting, Imperial College, London, UK
December 1997	Poster Presentation: “Structure Formation with Causal White Noise”, J. Robinson and J. Weller. NORDITA Conference: “Cosmology: from COBE to Galaxy Formation”, Copenhagen
April 1997	“Reionization by Active Sources and the CMB”, “CMB and Topological Defects” workshop, Imperial College, London, UK
Meetings & Workshops	<p>“GR17”, Dublin, Ireland, July 2004.</p> <p>“Plumian 300 - The Quest for a Concordance Cosmology and Beyond”, Institute of Astronomy, Cambridge, UK, July 2004.</p> <p>“Exploring the Universe”, Recontres de Moriond, La Thuile, Italy, March 2004.</p> <p>“Cosmo 03”, Ambleside, UK, August 2003.</p> <p>“Microwave Background after WMAP”, Aspen Center of Physics, Aspen, USA, June 2003.</p> <p>“Cosmology and Astrophysics with Galaxy Clusters”, Aspen Center of Physics, Aspen, USA, June 2003.</p> <p>OXCAM 7, “Post-WMAP Cosmology”, Cambridge, UK, May 2003.</p>

CMBNET Workshop, Oxford, UK, March 2003.

“From Here to Infinity: Extending the Frontiers in Cosmology”, Oxford, UK, December, 2002.

”Making Light of Gravity”, Cambridge, UK, July 2002.

“XVIIIth IAP Colloquium: ON THE NATURE OF DARK ENERGY”, Paris, France, July 2002.

“The cosmological Model”, Recontres de Moriond, Les Arcs, France, March 2002.

“The future of theoretical physics & cosmology”, Cambridge, January 2002.

“Dark Energy Workshop”, CfCP, Chicago, December 2001.

“Cosmology Summer Workshop”, Santa Fe, USA, July 2001.

”Frontiers of the Universe”, XIIIèmes Rencontres de Blois, France, June 2001

“197th Meeting of the American Astronomical Society”, San Diego, CA, USA, January 2001

“CMBNET workshop”, Oxford, UK, December 2000

“Energy Densities in the Universe”, Recontres de Moriond, Les Arcs 1800, France, January 2000

PASCOS 1999 “7th International Symposium on Particles, Strings and Cosmology”, Granlibakken, Lake Tahoe, USA, December 1999

NATO ASI “Structure Formation in the Universe”, Cambridge, UK, July 1999

Santa Fe Summer Workshop “Structure Formation and Dark Matter: Theory vs. Observations”, Santa Fe, USA, June 1999

David N. Schramm Memorial Symposium: “Inner Space/Outer Space II”, Fermi National Accelerator Laboratory, USA, May 1999

International Conference on “3K Cosmology”, Rome, Italy, October 1998

Cosmology Summer School, Cargese, France, August 1998

Kibble Symposium on “Gauge theory, Cosmology and fundamental Physics”, Imperial College, London, UK, July 1998

“Cosmology and Particle Physics”, CAPP-98, CERN, Geneva, Switzerland, June 1998

“Fundamental Parameters in Cosmology”, Les Arcs, France, January 1998

NORDITA Conference: “Cosmology: from COBE to Galaxy formation”, Copenhagen, Denmark, December 1997

British Universities Summer School in Theoretical Elementary Particle Physics, BUSSTEPP, Brighton, UK, August 1997

CMB Workshop at the Theoretical Astrophysics Center, Copenhagen, Denmark, May 1997

“CMB and Topological Defects” Workshop, Imperial College, London, UK, April 1997

“Particle Physics and the Early Universe” Meeting, Cambridge, UK, April, 1997

References

Prof. Andreas Albrecht, Department of Physics, University of California, One Shields Avenue, Davis, CA 95616, USA. albrecht@physics.ucdavis.edu

Dr Richard Battye, Jodrell Bank Observatory, Macclesfield, Cheshire SK11 9DL, UK. rbattye@jb.man.ac.uk

Prof. George Efstathiou, Institute of Astronomy, University of Cambridge, Madingley Road, Cambridge CB3 0HA, UK. gpe@ast.cam.ac.uk

Prof. Ofer Lahav, Department of Physics and Astronomy, University College London, Gower Street, London WC1E 6BT, UK. lahav@star.ucl.ac.uk

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Prof. Neil Turok, Department of Applied Mathematics and Theoretical Physics, Centre of Mathematical Sciences, Wilberforce Road, Cambridge CB3 0WA, UK. N.G.Turok@damtp.cam.ac.uk